including one mine drain on the mainstem of the Dolores and one mine drain upstream on Barlow Creek.

Mining operations on Silver Creek included the Rico-Argentine Mine, tailings at the Rico mill on Silver Creek, tailings ponds below the St. Louis Tunnel, and a sulfuric acid plant constructed just below the St. Louis Tunnel and Mine by the Rico-Argentine Mining Company, as shown in Figure 2-16 (URS, 1996). The iron pyrite ore taken from the St. Louis Mine was used to produce sulfuric acid for use at uranium mines. The waste materials from the acid plant and drainage from the St. Louis Mine were flumed to tailings ponds adjacent to Silver Creek and the Dolores River, as shown in Figure 2-16. These tailings ponds were poorly maintained and frequently ruptured during the winter (CDOW, 1973). For example, during the winter of 1966-67, almost continual spillage of tailings into Silver Creek and the Dolores River were observed. These spills completely covered the bottom with gray deposits and orange-red iron oxide flocculent. This led to the loss of populations of aquatic organisms inhabiting Silver Creek and the downstream sections of the Dolores River (CDOW, 1973 and USBR, 1998). Several studies conducted by the Colorado Department of Game, Fish, and Parks during the 1960s found no fish or aquatic insects inhabiting the Dolores River below the acid plant, but thriving populations of fish and aquatic insects in the reach above the acid plant. There are still several large tailings piles located on the banks of Silver Creek along its lower reaches. The lower reaches of the creek also receive runoff from active acid mine seeps. This mining activity has dramatically affected present-day Silver Creek. There are still orange and red iron-stained areas on the rocks along the banks of the lower creek, and there is a lack of benthic invertebrates in the lower reaches of Silver Creek. Water and sediment sampling in the Rico area was conducted for the US EPA in 1985, as discussed in more detail in Section 3, as discussed in more detail in Section 3. Mercury was detected in sediment samples in the Rico area from both Silver Creek and the upper Dolores River (0.1 to 0.12 mg/kg (E&E, 1985). A sample from the tailings pond next to Silver Creek had 13 mg/kg, which suggests the presence of mercury sulfides such as cinnabar. Mercury was also higher in sediment below the Rico-Argentine Mine (0.54 mg/kg) than sediment from the Dolores River below Silver Creek (ND to 0.06 mg/kg (Morrison Knudsen, 1994a). When the mercury is associated with sulfides, it is less available to biota. Follow-up sampling on Silver Creek was conducted in September 1995 for the US EPA. Three water and sediment samples from Silver Creek had no detected mercury; the detection limit for water was 0.2 µg/L and 0.12 to 0.13 mg/kg for sediment (URS, 1996).

*West Dolores near Dunton*

On the West Dolores River, mining activity for gold, silver, and copper was primarily located in the upper reaches above Cold Creek near Dunton, located about 36 miles upstream of the reservoir. (See Figure 2-13). Large mines included Emma, Johnny Bull, Teaser, Privateer, and Little Silver. In addition to the mines, hot springs are present near the West Dolores River area, notably at Geyser's Hot Springs and Dunton. Mercury is often present in areas with hot springs, either in the water or as cinnabar (HgS) deposits (Saupe, 1972 and Colorado Geological

# Review of Past and 1999 Mercury Data and Related Information for Six Colorado Reservoirs

**U.S. Environmental Protection Agency**
**Region VIII Ecosystems Protection**
**999 18th Street Suite 500**
**Denver, CO 80202**

U.S. EPA Contract No. 68-C7-0014
Work Assignment No.1-56

Work Assignment Manager
Catherine Hernandez

Tetra Tech, Inc.
3746 Mt. Diablo Blvd., Suite 300
Lafayette, CA 94549
(925) 283-3771

May 2000

complete copy of this report is in the McPhee Reservoir file.